

< WORKSHEET

Physics

ATTEMPTED MCQS 0/20



1) The graphical representation of ohm's law is:

- A) Hyperbola
- B) Ellipse
- C) Parabola
- D) Straight Line

☐ A ☐ B ☐ C ☐ D

2) ohm is defined as:

- A) volt / ampere
- B) volt / coulomb
- C) ampere / volt
- D) joule / coulomb

☐ A ☐ B ☐ C ☐ D

3) The resistance of a meter cube of the substance is called:

- A) Resistivity
- B) Conductivity
- C) Permittivity
- D) None of these

☐ A ☐ B ☐ C ☐ D

4) The S.I unit of resistivity is:

- A) ohm-m
- B) ohm-m²
- C) ohm-m³
- D) ohm-cm

☐ A ☐ B ☐ C ☐ D

5) When the resistances are connected in series the equivalent resistance is equal to?

- A) Sum of the reciprocal of the individual resistances
- B) Sum of individual resistances
- C) Product of the individual resistances
- D) Can't be predicted

☐ A ☐ B ☐ C ☐ D

6) The potential difference across resistances in series combination is:

- A) Always same C) May be same or different
B) Always different D) None of these

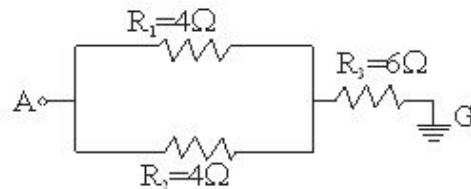
☐ A ☐ B ☐ C ☐ D

7) Three resistances 500 ohm, 350 ohm and 500 ohm are connected in series the equivalent resistance will be:

- A) 1300 Ω C) 650 Ω
B) 1350 Ω D) 1400 Ω

☐ A ☐ B ☐ C ☐ D

8) In the circuit shown



If voltage applied at A is 20 V then what would be the resultant current passing through R_3 .

- A) 4 A C) 2.5 A
B) 6 A D) 10 A

☐ A ☐ B ☐ C ☐ D

9) If a battery of 9 V is connected across 2.0 Ω resistance, then what would be the resultant current?

- A) 4.0 A C) 3.5 A
B) 4.5 A D) 5.0 A

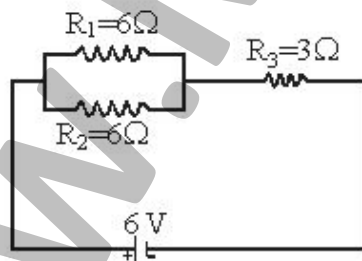
☐ A ☐ B ☐ C ☐ D

10) How many different resistances are possible with two equal resistors?

- A) 2 C) 4
B) 3 D) 5

☐ A ☐ B ☐ C ☐ D

11) Find the equivalent resistance of the circuit:



- A) 3 Ω C) 6 Ω
B) 12 Ω D) 4 Ω

☐ A ☐ B ☐ C ☐ D

12) Referring to Q.11, the total current drawn from source is:

- A) 0.5 A C) 1 A
B) 2 A D) 0.25 A

☐ A ☐ B ☐ C ☐ D

13) Referring to Q.11, the current passing through R_1 is:

- A) 0.5 A C) 1 A
B) 2 A D) 0.25 A

☐ A ☐ B ☐ C ☐ D

14) Referring to Q.11, the current passing through R_2 is::

- A) 0.5 A C) 1 A
B) 2 A D) 0.25 A

☐ A ☐ B ☐ C ☐ D

15) Referring to Q.11, the current passing through R_3 is:

- A) 0.5 A C) 1 A
B) 2 A D) 0.25 A

☐ A ☐ B ☐ C ☐ D

16) 2×10^6 electrons pass through a conductor in 1 ms. Find electric current flowing through conductor:

- A) 32×10^{-9} A C) 3.2×10^{-10} A
B) 32×10^{-10} A D) 0.32×10^{-10} A

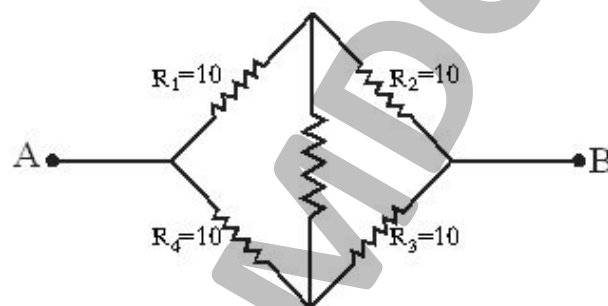
☐ A ☐ B ☐ C ☐ D

17) A carbon resistor is connected to a battery of 50 V and 2 A current is passing through it. If voltage is increases to 75 V, the current will become:

- A) 3 A C) 4.5 A
B) 1.5 A D) 6 A

☐ A ☐ B ☐ C ☐ D

18) If the resistance of each resistor is 10 ohm in the following figure, then what will be the effective resistance between points 'A' and 'B':



- A) 40 ohm C) 30 ohm
B) 50 ohm D) 10 ohm

☐ A ☐ B ☐ C ☐ D

19) The ratio of effective resistances of two identical resistors, first connected in series then in parallel is:

- A) 1:2 C) 4:1
B) 2:1 D) 1:4

☐ A ☐ B ☐ C ☐ D

20) A wire carrying electronic current is:

- A) Negatively charged C) Electrically neutral
B) Positively charged D) Any of these

☐ A ☐ B ☐ C ☐ D

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Physics

ATTEMPTED MCQS 20/20



1) The graphical representation of ohm's law is:

- A) Hyperbola C) Parabola
B) Ellipse D) Straight Line

A ☐ B ☐ C ☐ D ☐

Your answer is incorrect

Answer is "D"

Solution:- Graph of ohm's law is between "V" and "I". Since $V \propto I$, so, graph is straight line inclined with "V-axis".

2) ohm is defined as:

- A) volt / ampere C) ampere / volt
B) volt / coulomb D) joule / coulomb

A ☐ B ☐ C ☐ D ☐

Your answer is correct

Answer is "A"

Solution:- By ohm's law:

$$R = \frac{V}{I}$$

$$1 \text{ ohm} = \frac{1 \text{ volt}}{1 \text{ ampere}}$$

3) The resistance of a meter cube of the substance is called:

- A) Resistivity C) Permittivity
B) Conductivity D) None of these

A ☐ B ☐ C ☐ D ☐

Your answer is correct

Answer is "A"

Solution:- Resistivity of material of wire is defined as:

$$\rho = \frac{RA}{L} \quad \rho = \frac{R(1 \text{ m}^2)}{(1 \text{ m})}$$

4) The S.I unit of resistivity is:

- A) ohm-m C) ohm-m³
B) ohm-m² D) ohm-cm

A ☒ B ☐ C ☐ D

Your answer is correct

Answer is "A"

Solution:- By formula

$$\rho = \frac{RA}{L} = \frac{\Omega \text{ m}^2}{\text{m}} = \Omega \text{ m}$$

5) When the resistances are connected in series the equivalent resistance is equal to?

- A) Sum of the reciprocal of the individual resistances
B) Sum of individual resistances
C) Product of the individual resistances
D) Can't be predicted

A ☐ B ☒ C ☐ D

Your answer is incorrect

Answer is "B"

Solution:- $R_e = R_1 + R_2 + R_3 + \dots$

6) The potential difference across resistances in series combination is:

- A) Always same C) May be same or different
B) Always different D) None of these

A ☐ B ☒ C ☐ D

Your answer is incorrect

Answer is "C"

Solution:- If resistances are same then potential is also same, otherwise it is different.

7) Three resistances 500 ohm, 350 ohm and 500 ohm are connected in series the equivalent resistance will be:

A) 1300 ☐ C) 650 ☐

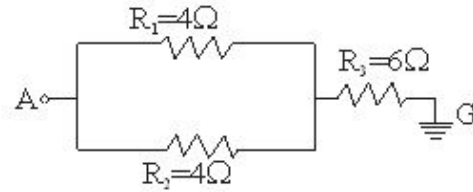
- A) 1300 Ω C) 1350 Ω
 B) 1350 Ω D) 1400 Ω
- A ☐ B ☐ C ☐ D

Your answer is incorrect

Answer is “B”

Solution:- $R_e = R_1 + R_2 + R_3$

8) In the circuit shown



If voltage applied at A is 20 V then what would be the resultant current passing through R_3 .

- A) 4 A C) 2.5 A
 B) 6 A D) 10 A
- A ☐ B ☐ C ☐ D

Your answer is incorrect

Answer is “C”

Solution:- $I = \frac{V}{R_e}$

9) If a battery of 9 V is connected across 2.0 Ω resistance, then what would be the resultant current?

- A) 4.0 A C) 3.5 A
 B) 4.5 A D) 5.0 A
- A ☐ B ☐ C ☐ D

Your answer is incorrect

Answer is “B”

Solution:- $I = \frac{V}{R}$

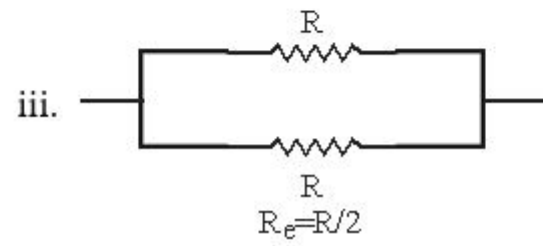
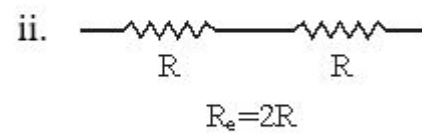
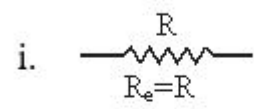
10) How many different resistances are possible with two equal resistors?

- A) 2 C) 4
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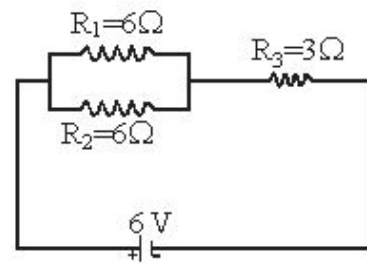
Your answer is incorrect

Answer is “B”

Solution:- By two resistors of equal value, following different resistances can be obtained:



11) Find the equivalent resistance of the circuit:



- A) 3 Ω C) 6 Ω
B) 12 Ω D) 4 Ω
- A ☐ B ☐ C ☐ D

Your answer is incorrect

Answer is "C"

Solution:- $R_e = (R_1 \parallel R_2) + R_3$

12) Referring to Q.11, the total current drawn from source is:

- A) 0.5 A C) 1 A
B) 2 A D) 0.25 A
- A ☐ B ☐ C ☐ D

Your answer is incorrect

Answer is "C"

Solution:- $V = I R_e$

13) Referring to Q.11, the current passing through R_1 is:

- A) 0.5 A C) 1 A
B) 2 A D) 0.25 A
- A ☐ B ☐ C ☐ D

Your answer is correct

Answer is "A"

Solution:- $I_1 = \left(\frac{R_2}{R_1 + R_2} \right) I$

14) Referring to Q.11, the current passing through R_2 is::

- A) 0.5 A C) 1 A
B) 2 A D) 0.25 A

A ☐ B ☐ C ☐ D

Your answer is correct

Answer is "A"

Solution:- $I_2 = \left(\frac{R_1}{R_1 + R_2} \right) I$

15) Referring to Q.11, the current passing through R_3 is:

- A) 0.5 A C) 1 A
B) 2 A D) 0.25 A

A ☐ B ☐ C ☐ D

Your answer is incorrect

Answer is "C"

Solution:- $I_3 = I_1 + I_2$

16) 2×10^6 electrons pass through a conductor in 1 ms. Find electric current flowing through conductor:

- A) 32×10^{-9} A C) 3.2×10^{-10} A
B) 32×10^{-10} A D) 0.32×10^{-10} A

A ☐ B ☐ C ☐ D

Your answer is incorrect

Answer is "C"

Solution:-

Use:

$$I = \frac{Q}{t} = \frac{ne}{t}$$

17) A carbon resistor is connected to a battery of 50 V and 2 A current is passing through it. If voltage is increases to 75 V, the current will become:

- A) 3 A C) 4.5 A
B) 1.5 A D) 6 A

A ☐ B ☐ C ☐ D

Your answer is correct

Answer is "A"

Solution:-

Initially

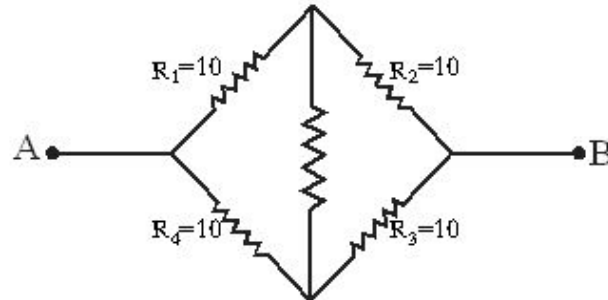
$$V = IR$$

$$R = \frac{V}{I} = \frac{50}{2} = 25 \Omega$$

After increasing voltage

$$I' = \frac{V'}{R} = \frac{75}{25} = 3 \text{ A}$$

- 18) If the resistance of each resistor is 10 ohm in the following figure, then what will be the effective resistance between points 'A' and 'B':



- A) 40 ohm
B) 50 ohm
C) 30 ohm
D) 10 ohm

A ☐ B ☐ C ☐ D

Your answer is incorrect

Answer is "D"

Solution:-

$$R_{AB} = (10 + 10) \parallel (10 + 10)$$

- 19) The ratio of effective resistances of two identical resistors, first connected in series then in parallel is:

- A) 1:2
B) 2:1
C) 4:1
D) 1:4

A ☐ B ☐ C ☐ D

Your answer is incorrect

Answer is "C"

Solution:-

$$R_s = nR$$

$$R_p = \frac{R}{n}$$

Taking ratio

$$\frac{R_s}{R_p} = \frac{nR}{\frac{R}{n}} = n^2$$

- 20) A wire carrying electronic current is:

- A) Negatively charged
B) Positively charged
C) Electrically neutral
D) Any of these

A ☐ B ☐ C ☐ D

Your answer is incorrect

Answer is “C”

Solution:-

Any current carrying object is electrically neutral.

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